Ⅶ008/010

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REMARKS

The Examiner has rejected claim 1 as indefinite, stating that "physical variable" is not clearly defined and that the Examiner has given it a broad interpretation. The term "physical variable" is defined in the specification to include sound, vibration or other physical phenomena. Even if the term "physical variable" were not clear in this regard, it is implicitly so limited, since claim 1 also recites controlling the "physical variable" with a "force," which would be limited to physical phenomena, such as sound and vibration. Alternatively, since the Examiner has assigned a broad interpretation to the term, it is believed that the claim is not indefinite and no amendment is necessary. If that is not the case, the Examiner is requested to contact the undersigned to work out some alternative quickly.

Claims 1-5 have been rejected as anticipated by Bazarjani (US 6,005,506). Bazarjani does not disclose the step of "generating a force for controlling the physical variable based upon the control command," as required by claim 1. The Examiner cites col. 8, lines 1-3 for this element, but this passage simply states that the baseband processor 2270 performs additional signal processing. There is no "force" generated by Bazarjani. It should also be noted that not all of the elements to which the Examiner refers in rejecting claim 1 are in the same embodiment in Bazarjani. For that additional reason, Bazarjani does not anticipate claim 1.

New claims 20 and 21 have been added to clarify that the "physical variable" and the "force" are sound or vibration, which also distinguishes Bazarjani.

Claims 6, 9, 14-19 have been rejected as anticipated by Ivers (WO 00/20775). Ivers does not disclose identifying harmonic components of the physical variable at a frequency of interest. The Examiner references the Programmable Gain Amplifier 52a of Fig. 15a of Ivers. This PGA

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52a simply amplifies the signal at one of two gains but does not identify harmonic components. Therefore, independent claims 6 and 14 are not anticipated by Ivers.

With respect to claim 14, Ivers additionally does not "identify second harmonic components a_{k2}, b_{k2} of a difference between the first frequency of interest f_1 and the second frequency of interest f_2." Ivers does not identify any harmonic components.

Ivers does not disclose a control circuit that "filters the sensed signals to extract a frequency range with a lower bound given by $(2n-1)*f_s/2$ and an upper bound given by $(2n+1)*f_s/2$, where n is an integer chosen so that the frequency of interest (f_d) is within the extracted frequency range," as recited by claim 17. In other words, the sample rate is related to the bandwidth of a range of frequencies (having the frequency of interest within the range), which may be much lower than the sample rate would be if it were related to the frequency of interest, as in the prior art. Ivers does not disclose such a relationship between the sample rate and the range of frequencies of interest. Therefore, claim 17 is not anticipated by Ivers.

Claims 11, 12 and 13 have been rejected as obvious over Ivers in view of Kotoulas (US 6,493,689). Kotoulas discloses a noise and vibration control system with multiple sensors and multiple actuators. As in the system disclosed in the present application, each of the actuators may affect the physical variable as measured by more than one of the sensors. This is not possible in Ivers. The system in Ivers does not address this complex relationship between multiple sensors and actuators. Nor is the complex system of Kotoulas necessary or useful in the isolation table of Ivers. Therefore, it would not be obvious to modify Ivers in view of Kotoulas.

Claims 7, 8 and 10 have been rejected as obvious over Ivers in view of Bennett (US 6,429,939). There is no motivation for modifying Ivers to generate harmonic components of
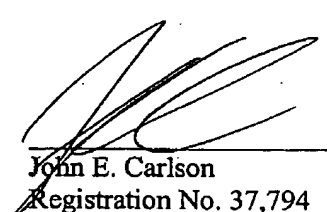
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control commands. In the present invention, this permits the updates to be performed at a rate much lower than the frequency of the control commands. However, in Ivers, the frequencies of interest are low (0.05 Hz to 90Hz, page 13, line 30). Therefore there is no need to generate the harmonic components of control commands. Therefore, claim 7 is independently patentable.

Please charge $50 for one claim in excess of twenty to Deposit Account No. 19-2189. If any additional fees or extensions of time are ever required, please charge to Deposit Account No. 19-2189.

Respectfully submitted,

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